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**REMARKS**

Claims 1-11 are pending in the present application. Claim 1 has been amended, and Claims 12-16 have been added, leaving Claims 1-16 for consideration upon entry of the present Amendment. Paragraph 14 of the Specification has been amended to correct the typographical error in the last sentence wherein "value" was misspelled as "valve". No new matter has been introduced by these amendments.

Support for the amendment to Claim 1 can be found at least in the Specification on page 3, paragraph 14, the last sentence, and on pages 2-3, paragraph 11, second sentence.

Support for new Claim 12 can be found at least in the Specification on page 3, paragraph 15, the last sentence.

Support for new Claim 14 can be found at least in the Specification, paragraph 16 on page 4, lines 2-4.

Support for new Claim 15 can be found at least in the Specification, paragraph 16 on page 4, beginning at line 6, and paragraph 17.

Support for new Claims 16 and 17 can be found at least in the Specification on page 3, paragraph 15, the first sentence.

Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks, which are set forth below with reference to the numbered paragraphs in the Office Action.

**Claim Rejections Under 35 U.S.C. §102(b)**

2.

Claims 1, 2, 4, 9 and 10 stand rejected under 35 U.S.C. §102(b), as allegedly anticipated by Chapel, Jr., et al., U.S. 4,907,341 (hereinafter "the '341 patent"). Applicants respectfully traverse this rejection.

The present application is directed to a method for manufacturing a planar temperature sensor having an inputted resistance value, the method comprising:  
disposing a thick amount of a material having a temperature coefficient of resistance of greater than about 800 parts per million and a natural resistance of above about 5 micro-ohm-centimeters on a substrate; measuring a resistance value of said material; setting a laser trimming device to

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ablate material consistent with achieving the inputted resistance value; and ablating an amount of material disposed on the substrate with a laser trimming device, the amount of material ablated being sufficient to meet the inputted resistance value. (Emphasis added.) The disclosure of a thick amount of material being disposed on the substrate is in contrast to the laser trimming methods employed in other methods for devices employed in temperature environments below 200°C. (See, e.g. paragraph 16.) See also, Column 3, line 66- Column 4, line 2 of the '341 patent.

The thin film method for producing temperature sensors can be expensive and troublesome with respect to the extremely precise control technique required for printing thin films. In addition to avoiding the need for tightly controlled screen printing techniques, the disclosed method allows immediate resistance feedback and adjustment in a cost effective and simple system. (See Specification, paragraph 2, last two sentences; and paragraph 22.)

In contrast, the '341 patent does not teach or suggest the deposition of a thick material on the substrate.

In making the rejection, the Examiner alleges that,

As applied to claim 1, the '341 teaches a method of manufacturing a compound thin film resistor, comprising:

disposing an amount of material having a TCR of between +500 to +9000 ppm (Cf. Fig. 2, element 42; column 4, lines 59-63) and a resistivity of 0.1 ohm per square (Cf. column 6, lines 29-30) or 7 micro-ohm-cm (for Nickel) on the substrate (Cf. Fig. 2, element 12),

measuring (Cf. column 6, lines 11-14) the resistance value of the compound and laser machining for adjustment which is carried out under the guidance of a computer.

As applied to Claim 2, the Examiner further alleges that "the '341 teaches a thin film resistor which is deposited on the substrate (Cf. column 3, lines 66-68)."

In addition, the Examiner alleges that:

As applied to claim 4, the '341 teaches that the first setting of resistive material (Cf. Fig. 2, element 42; column 4, lines 3 & 4) is deposited on the substrate and the second setting of resistance material (Cf. Fig. 2, element 4; column 4, lines 4 & 5) is deposited on the first one.

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The Examiner further alleges that, "as applied to claims 9 and 10, the '341 teaches that the substrate is glass or alumina from ceramic material (Cf. column 3, lines 40-42).

In response, although Applicants agree that "the '341 teaches a thin film resistor which is deposited on the substrate (Cf. column 3, lines 66-68)", it should be noted that the '341 patent enables only the deposition of a thin layer of low resistance material. There is no teaching or suggestion that the method disclosed could be used with a thick film. If a thick film were deposited according to the method taught by the '341 patent, there would have to be a lot more material ablated than normal, and the result would be the generation of a lot of heat. Therefore, an artisan would not consider applying the '341 disclosure to a substrate with a thick amount of material.

Further, Applicants provide a formula for determining a resistance overshoot and directions for compensating for the thermal change in the resistance of the deposited material. (Specification paragraph 16.)

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Variant Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). For a reference to be considered to anticipate a claim of the invention, each material limitation of that claim must be met by the reference. (See, *In re Marshall*, 577 F2d 744, 3 USPQ2d 1766, (CCPA 1978) for example.) There must be no difference between the claimed invention and the disclosure, as viewed by a person of ordinary skill in the field of the invention. (*Scripps Clinic & Res. Found. V. Genentech Inc.*, 927 F2d 565, 18 USPQ2d 1001 (CAFC 1991).) Anticipation can be avoided where the applicant has proven that a prior art product does not possess the characteristics of the claimed product. (*Ex parte Gray*, 10 USPQ2d 1922 (BPAI 1989).) Thus, to determine if anticipation exists, one must identify the extent of the disclosure of the reference.

The claims are not anticipated by this reference as the reference fails to teach each material limitation of the claims. The broad generic disclosure of the '341 patent does not rise to the level of an anticipation. (Cf. *In re Petering et al.*, 301 F2d 676, 133 USPQ 275 (CCPA 1962).

Claims 12-16, newly presented, are not anticipated as the reference does not exemplify or disclose or enable deposition of a thick film and ablation thereof.

As such, the '341 patent does not anticipate the claims as each material limitation of the

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claims is not disclosed by the reference.

Claim Rejections Under 35 U.S.C. §103(a)

4.

Claims 3, 5-8, and 11 stand rejected under 35 U.S.C. §103(a), as allegedly unpatentable over the '341 patent. Applicants respectfully traverse this rejection.

As applied to Claim 3, the Examiner alleges that "the '341 teaches the claimed invention except for reading the resistor value within 0.2% of resistance value."

As applied to Claims 5-7, the Examiner further alleges that

The '341 teaches the claimed invention except for measured or monitored firing or heat-drying of the thin film resistor between the two settings. The '341 teaches that it is known to adjust and deposit the second resistive material on the first one (Cf. 4, lines 4-7);

As applied to claim 8, the '341 teaches the claimed invention except for the deposition of resistive material from one of Platinum, Rhodium, Titanium, Palladium or their alloys;

As applied to claim 11, the '341 teaches the claimed invention except for the temperature firing between 1,000 to 1,600 degree Celsius.

Applicants first note that Claims 3, 5-8 and 11 depend from Claim 1, and thus should be allowable.

Further, for an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. (*In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).)

The reference fails to render the claims obvious over the prior art. In determining obviousness of the claimed invention, one must consider, *inter alia*, the similarities and

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differences between the claims and prior art.

Claims 1-16 require the deposition of a thick film of low resistance material on the substrate. For reasons discussed above, one of ordinary skill in the art would not have expected a thick film to be ablated by laser and still result in a thin film with the desired resistance. Thus, there is no motivation within the teachings of the reference to modify the thickness of the film such that it would read an Applicants' claimed invention. Accordingly, the reference does not render the claims obvious under 35 U.S.C. §103.

Even with the above notwithstanding, the result achieved by Applicant's disclosed method was unexpected from the teachings of the reference. That is, the reference does not teach or suggest the deposition of a thick film. Accordingly, any *prima facie* case of obviousness that may have been made out against the claims has been rebutted by the evidence of record.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

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If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

CANTOR COLBURN LLP

By *Jacqueline M. Arendt*  
Jacqueline M. Arendt  
Registration No. 43,474

CANTOR COLBURN LLP  
55 Griffin Road South  
Bloomfield, CT 06002  
Telephone (860) 286-2929  
Facsimile (860) 286-0115

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